

**REMARKS**

In view of the following remarks, the Examiner is respectfully requested to withdraw the rejections and allow Claims 21-48, the only claims pending and currently under examination in this application.

The Examiner's decision to rejoin Claims 46 and 47 is acknowledged and appreciated.

Claim 21 has been amended to add a comma before the term "derives" in the first line of element (b) for clarification. Claims 30, 31 and 43 have been amended for proper antecedent basis. As no new matter is introduced, entry of the amendment by the Examiner is respectfully requested.

***Claim Rejections - 35 U.S.C. § 112***

Claims 21-36 and 46-48 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. In particular, the Examiner asserts that part (b) of Claim 21 is unclear.

Applicants have amended Claim 21 to clarify that the processor derives a corrected drive pattern different from the target drive pattern. Withdrawal of the rejection is respectfully requested.

***Claim Rejections - 35 U.S.C. § 101***

Claims 21-24 and 26-48 are rejected under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter.

§ 101 of title 35, United States Code, enumerates four categories of patentable subject matter - process, machine, manufacture, or composition of matter. The question of whether a claim encompasses enumerated statutory subject matter should not focus

on which of the four categories of subject matter a claim is directed to, but rather on the essential characteristics of the subject matter, in particular, its practical utility. MPEP § 2106, IV, B.

In making this rejection, the Examiner asserts that the claims are drawn to a process involving a computational algorithm because they are drawn to “an apparatus or a computer program”. Office Action, page 3, lines 12-15.

Claims 21-24, 26-39 and 46-48 (“apparatus claims”) are drawn to an apparatus for fabricating an addressable array of biopolymer probes on a substrate according to a target array pattern. Claims 40-45 (“computer program product claims”) are drawn to a computer program product, for use on an apparatus for fabricating an addressable array of biopolymer probes on a substrate according to a target array pattern – not computer program as the Examiner asserts. The apparatus, when operated according to a target drive pattern based on nominal operating parameters of the apparatus, provides the probes on the substrate in the target array pattern. As such, the claims are drawn to at least one of the enumerated categories of patentable subject matter.

In particular, apparatus Claims 21-24, 26-37, 39, and 46-48 include a processor and a sensor. According to the Applicants’ Specification, the sensor may be a camera (Specification, page 11, lines 4-9). Apparatus Claim 38 includes a dispensing head, a sensor, and a transporter. Computer program product Claims 40-45 are directed to computer program products, which comprise a computer readable storage medium.

Therefore, each rejected claim belongs to at least one of the enumerated categories. The rejection may be withdrawn for this reason alone.

Applicants further submit that the rejected claims involve a physical transformation and produce a useful, tangible and concrete final result.

The Examiner asserts that the claims perform a method that derives a corrected drive pattern upon sensing an error, which does not necessarily require a tangible result. Office Action, page 4, lines 1-4.

The processor, when an error is detected by the sensor, derives, based on the error, a corrected drive pattern different from the target drive pattern such that use of the corrected drive pattern results in a reduced discrepancy between the target and actual array patterns. As such, the processor causes a reduced discrepancy between the target and actual array patterns. The actual array patterns refer to patterns of arrays fabricated according to the present invention. As such, the processor's deriving a corrected drive pattern different from the target drive pattern transforms an array pattern by reducing a discrepancy between the target and actual array patterns. Furthermore, the claimed apparatus produces an array with an actual array pattern, which are tangible results.

Applicants note that, in a recent non-precedential opinion, the Board of Patent Appeals and Interferences held that process claims directed to purely mathematical representations of physical systems ("simulating") would be patentable if the recited process employs at least one class of statutory subject matter, which is not simply generic computing device for performing steps. *Ex parte Wasynczuk*, 87 USPQ2d 1826 (Bd. Pat. App. & Int. 2008).

The present apparatus claims employ at least one class of statutory subject matter such as a sensor.

Accordingly, the present claims are directed to an apparatus and computer program product which not only belong to at least one of the enumerated categories of patentable subject matter, but also provide "useful, concrete and tangible" results and are patentable under 35 U.S.C. § 101. Withdrawal of this rejection is respectfully requested.

***Claim Rejections - 35 U.S.C. § 103(a)***

Claims 21-48 are rejected under 35 U.S.C. § 103(a) as allegedly obvious over Blanchard (WO 98/41531) in view of Gutmann et al. (Transducers, Solid-State Sensors, Actuators and Microsystems, 12<sup>th</sup> International Conference (June 2003) Vol. 1, pages 364-367).

In order to meet its burden in establishing a rejection under 35 U.S.C. §103, the Office must first demonstrate that a prior art reference, or references when combined, teach or suggest all claim elements. *See, e.g., KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1740 (2007); *Pharmastem Therapeutics v. Viacell et al.*, 491 F.3d 1342, 1360 (Fed. Cir. 2007); MPEP § 2143(A)(1). In addition to demonstrating that all elements were known in the prior art, the Office must also articulate a reason for combining the elements. *See, e.g., KSR* at 1741; *Omegaflex, Inc. v. Parker-Hannifin Corp.*, 243 Fed. Appx. 592, 595-596 (Fed. Cir. 2007) citing *KSR*. Further, the Supreme Court in *KSR* also stated that that “a court *must* ask whether the improvement is more than the predictable use of prior art elements according to their established functions.” *KSR* at 1740; emphasis added. As such, in addition to showing that all elements of a claim were known in the prior art and that one of skill had a reason to combine them, the Office must also provide evidence that the combination would be a predicted success.

The Examiner asserts that Blanchard's apparatus for fabricating an array in combination with Gutmann's sensor viewing a dispensing head, nozzle or droplet pattern by capturing one or more images of the droplet pattern renders the claimed invention obvious.

Applicants respectfully submit that the Gutmann reference is not prior art against the instant claims. The present application is a divisional of Application Serial No. 09/359,527, filed on July 22, 1999, the entire disclosure of which is incorporated by reference. The Gutmann reference was published at the 12<sup>th</sup> International Conference

on Solid State Sensors, Actuators and Microsystems, which was held from June 8 to June 12, 2003. As such, Gutmann was published *after* the effective filing date of the instant application (July 22, 1999). Therefore, Gutmann does not qualify as prior art and is not properly relied upon in a rejection of the present claims under 35 U.S.C. § 103(a).

As the Examiner acknowledged, Blanchard alone does not teach each and every element of the claimed invention. Accordingly, withdrawal of the rejection is respectfully requested.

**CONCLUSION**

Applicants submit that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, please telephone Bret Field at (650) 327-3400.

The Commissioner is hereby authorized to charge any underpayment of fees associated with this communication, including any necessary fees for extensions of time, or credit any overpayment to Deposit Account No. 50-1078.

Respectfully submitted,

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